What Is Claimed Is:

1. In a method of detecting radiation by exposing a scintillator to radiation , sensing optical light emitted from the scintillator using at least one light sensitive device, and producing an indication of the radiation based on output from the light sensitive device, the improvement comprising providing a high gain amplifier and co nfiguring the high gain amplifier and the light sensitive device in conjunction with the scintillator so that the radiation impacting on one or more semiconductors in the high gain amplifier and photodiode is directly converted into an electrical signal wh ich can then be amplified for indication of the presence of the directly converted radiation.

2. The method of claim 1, wherein the scintillator substantially surrounds the light sensitive device and high gain amplifier.

3. The method of claim 1, wherein the electrical signal is amplified by the high gain amplifier.

4. The method of claim 1, wherein one or more of an audible, vibratory, or visual signal is used to indicate the presence of the directly converted radiation.

5. The method of claim 1, wherein a noise present with the detected radiation is filtered prior to indicating presence of the radiation.

6. The method of claim 1, wherein at least an intensity of the detected radiation is indicated by one or more of an audible, vibratory, or visual signals.

7. The method of claim 6, wherein a presence and an intensity of the detected radiation is indicated by one or more of an audible, vibratory, or visual signals.

8. The method of claim 1, wherein the scintillator, the photodiode, and high gain amplifier are housed in an optically opaque housing that is sized to be worn on a person's body or hung on a wall or ceiling.

9. In a radiation detector having a scintillator and at least one light sensitive device encased in an optically opaque housing, the light sensitive device sensing optical light emitted from the scintillator as a result of radiation impacting the scintillator and generating an electrical signal representative of the detected radiation, the improvement comprising providing a high gain amplifier coupled to the light sensitive device, the high gain amplifier and light sensitive device configured with the scintillator so that radiation can

impinge on each of the high gain amplifier, photodiode and scintillator so that high levels of radiation can be directly converted to electrical signals using semiconductor material in the light sensitive device and high gain amplifier.

10. The detector of claim 9, further comprising means for indicating at least the presence of the directly converted radiation.

11. The detector of claim 10, wherein the indicating means comprises one or more of an audio, visual, or vibratory signal.

12. The detector of claim 9, wherein the indicating means indicates the presence and intensity of the directly converted radiation.

13. The detector of claim 9, further comprising an analog to digital signal converter to converter analog signals produced by the amplifier to digital signals.

14. The detector of claim 13, further comprising a microprocessor for filtering noise from the digital signal.

15. The detector of claim 9, wherein the optically opaque housing is sized to be carried on a person, or hung on a wall or ceiling.

16. The detector of claim 9, wherein the light sensitive device is one of a photodiode, an array of photodiodes, one or more CCD devices, or a photomultiplier tube.

17. The detector of claim 9, wherein the scintillator is a rare earth phosphor.

18. The detector of claim 17, wherein the light sensitive device and high gain amplifier are an integral unit.

19. The detector of claim 9, wherein the scintillator surrounds the photodiode and high gain amplifier.

20. A hand-held device for detecting dirty bombs and lost radioactive isotopes comprising:

a housing having a wall made of a predominantly epoxy composite material binder capable of withstanding temperatures from -50 to +70 degrees Celsius and sufficiently thick to withstand vibrations and optically opaque;

the radiation detector of claim 1 disposed in said housing;

an A/D converter disposed in said housing and coupled to the radiation detector;

a processor disposed in said housing and interfaced to the A/D converter for filtering ambient noise from detected radioactivity and control alarm indicator states;

a light, buzzer, or vibrating mechanism disposed in said housing and interfaced to the processor for alerting the holder to detected radiation;

a switch disposed in said housing and interfaced to the processor for control and diagnostic purposes; and

a battery disposed in said housing to power all components inside the housing.